

A survey of sanitarian education, experience, and training, such as the questionnaire study described here, accents the administrative need for inventories of sanitation personnel.

A Pilot Survey of Sanitarians and Their Background

By HENRY R. O'BRIEN, M.D., M.P.H., and
ARTHUR H. NEILL, C.E., M.P.H.

YESTERDAY, environmental health services were performed chiefly by the sanitary inspector on the one hand and the sanitary or public health engineer on the other. Today, there appears between them the modern sanitarian. While the exact duties of the modern sanitarian and his qualifications are subjects of debate, we know that since he handles complex situations he requires a broad educational background. At the same time, he does not have the training of the sanitary engineer, who is prepared to deal with the design, construction, and operation of water or disposal plants.

Dr. O'Brien, recently retired from the Public Health Service, is with the Pennsylvania State Department of Health as director of professional training. After 4 years of service in Region III, Mr. Neill is now acting chief, Technical Services Section, General Engineering Program, Division of Sanitary Engineering Services, Public Health Service.

Arthur P. Miller, sanitary engineer director, Division of Sanitary Engineering Services, acted as consultant in planning the study described in this paper, which was originally presented at the 23d annual meeting of the Southern Branch of the American Public Health Association, May 11-13, 1955, New Orleans. Other papers presented at the Southern Branch meeting appear in brief in the September 1955 issue of Public Health Reports, p. 914.

All three, the engineer, the sanitarian, and the inspector, are concerned with matters of environmental sanitation. The dividing line between the sanitarian and the sanitary inspector is not always drawn clearly, but a distinct line is becoming visible in places. The future may see fewer of the latter and more of the former. This survey and other studies may help define our goals and shape our definitions.

This paper uses the term "sanitarian" in its broadest sense, to include the great number of those doing field work in the sanitation of the environment. We include staff members and their supervisors and omit those who hold engineering degrees, as well as laboratory workers and laborers.

The people we are considering are the second most numerous group in public health. Only public health nurses outnumber them. The contribution of sanitarians to public health progress is significant and important, for these men are in intimate and daily contact with the community's environmental needs. They may deal with only one phase of environmental health, such as milk or plumbing sanitation, or they may handle more generalized programs. They may enforce regulations or use more educational processes.

How sanitarians are being trained is therefore important even beyond the need for training all of us share in public health. Sanitarians come to the health department with

widely varied educational background and job experience. Most of them have to be trained from the beginning. It is accepted practice that in planning any inservice program of education we study such items as the trainee's age, schooling, experience, and previous practical training.

Because information on these points was lacking in the States included in Region III of the Public Health Service (Washington, D. C.), a questionnaire was prepared to secure this information for selected areas. Copies of the questionnaire were distributed to the individual sanitarians in May and June 1954, through the health department of a State (Maryland), a city (Baltimore), a large island (Puerto Rico), and a small island group (the Virgin Islands), which are all within Region III and offer some contrast with each other. If the pilot study proved worth while, it was planned to extend it to other States in Region III, and perhaps elsewhere.

In all, 491 replies were returned as follows:

Maryland:	
State health department.....	5
County health departments.....	68
Private industry (milk plants).....	11
Total	84
Baltimore:	
City health department:	
Industrial hygiene.....	6
Food sanitation.....	12
Housing sanitation.....	19
Meat inspection.....	18
Milk sanitation.....	12
Rodent control.....	12
General community sanitation.....	13
Plumbing inspection.....	7
Health department total	99
Sanitary corps (police department).....	24
Private industry:	
Grocery chains or railroad dining cars....	22
Milk plants.....	19
Total	164
Virgin Islands	10
Puerto Rico:	
Vector control.....	10
General sanitation:	
Supervisors	22
General community sanitarians.....	201
Total	233

The returns from official health departments apparently include all the sanitary staff. The number of sanitary workers (52) paid by private industry in the State of Maryland, including Baltimore, is probably not complete. Doubtless, there are still others in industry whose work is broadly like that of a health department sanitarian. Those of us who are in Government service might be more alert to searching them out, for we are all working in community sanitation together, and the advantages of training should be extended to sanitation personnel wherever possible.

Analysis of the Tables

Some of the findings of the questionnaire are included in various tables and are touched on in this discussion. The samples of information included in the tables and the groupings in which they are presented illustrate some of the ways in which the returns of similar questionnaires can be studied. We caution that the data reported here are limited in scope. However, from such types of information in our own area we should be able to determine what kind of sanitary workers we are getting. Are they the kind we want? How are we training them? How do we compare with our neighbors, with ourselves some years ago? Are we moving in ways we want to go?

Population Ratio

Our first interest might well be the number of sanitarians employed by health departments in relation to population. Baltimore City and Puerto Rico are much alike in this respect. In Baltimore, 1 sanitarian is employed for each 10,060 persons in the population. In Puerto Rico, the ratio is 1 to each 9,532. Maryland outside of Baltimore shows 1 sanitarian for each 20,904 persons. The Virgin Islands ratio is 1 to 2,200, but there the population is scattered over 3 islands.

Age, Education, and Salary

The relation of age and level of education attained before employment is an appropriate study. Figures for Maryland appear in table 1. The table might be interpreted in this fashion: Most of the men with less than average

Table 1. Relationship of age and education attained by Maryland sanitarians,¹ 1954

Age group (years)	Second college degree ²	First college degree ³	High school graduation ⁴	Some high school	8th grade or less
24 and under		1			
25-29		10	2	1	
30-34		9	3		1
35-39	3	4	4		
40-44	2	3	3	1	
45-49	1	3	2	1	
50-54		2	3	2	1
55-59	1		3	3	2
60-64		1	2		1
65-69				2	
70-74			1	1	
Not stated		2	1		2
Total number	7	35	24	11	7

¹ Excluding sanitarians in Baltimore. ² Master's degree or doctorate. ³ Bachelor's degree. ⁴ But lacking college degree.

Table 2. Educational progress of all sanitarians in areas studied, 1954

Schooling completed	Total	Maryland	Baltimore	Virgin Islands	Puerto Rico
All sanitarians					
Total number	491	84	164	10	233
8th grade:					
Number	464	75	150	8	231
Percent of total	95	89	92	80	99
High school:					
Number	372	66	109	6	191
Percent of total	76	78	66	60	82
College:					
Number	125	42	60	0	23
Percent of total	25	50	37		10
Sanitarians with less than 4 years in present service					
Total number	172	40	51	4	77
8th grade:					
Number	169	40	48	4	77
Percent of total	98	100	94	100	100
High school:					
Number	160	35	44	4	77
Percent of total	93	83	86	100	100
College:					
Number	68	27	27	0	14
Percent of total	40	68	53		18

¹ The 3 sanitarians who had not finished the 8th grade were not in the health department.

schooling are in the older age groups. When these workers were in their boyhood, fewer children went on to finish high school, or even grade school. It might be that the 5 who attended only grade school and the 11 others who did not finish high school would raise problems in inservice education, though their maturity and experience will aid them.

Another grouping summarizes the educational background of sanitarians in the four areas studied (table 2). About three-fourths of the sanitarians in each area—more in Puerto Rico, fewer in Baltimore and the Virgin Islands—finished high school. Half of the Maryland workers, a third of those in Baltimore City, and a tenth of those in Puerto Rico had college degrees. None in the Virgin Islands had college degrees. And in no area had every sanitarian finished grade school.

The figures change greatly when we consider only the 172 sanitarians with less than 4 years in the present sanitation service. All health department appointees have finished the eighth grade. More than 90 percent of the new sanitarians are high school graduates, and 40 percent have college degrees. This trend is distinctly encouraging. The knowledge helps in

Table 3. Major fields for degrees among sanitarians in Baltimore, State of Maryland, and Puerto Rico, 1954

Major	Total	Baltimore		Maryland	Puerto Rico
		Private industry	City		
Total number of sanitarians	125	11	49	42	23
Biology	21	2	5	4	10
Chemistry	12	2	4	2	4
Bacteriology	3		2	1	
Pharmacy	3	1	2		
Agriculture	21	2	1	13	5
Law	5		3	2	
Education	9		2	7	
Science, mathematics	10		7	1	2
English, philosophy, psychology, history	12		7	5	
Government, sociology	2		2		
Other subjects	21	3	11	6	1
Not stated	6	1	3	1	1

fixing the level of instruction of new workers.

It is worth while to see the fields in which staff members with degrees have done their major work, as shown in table 3. The number

Table 4. Relationship of salary and education level attained by Maryland sanitarians,¹ 1954

Salary group	Second college degree ²	First college degree ³	High school graduation ⁴	Some high school	8th grade or less
\$2,500-\$2,999		1	1	1	2
\$3,000-\$3,499		1	2	5	
\$3,500-\$3,999		20	3	2	5
\$4,000-\$4,499	3	6	14	3	
\$4,500-\$4,999	1	3	3		
\$5,000-\$5,499	1	1	1		
\$5,500-\$5,999	1	2			
\$6,000-\$6,499	1	1			
Total number	7	35	24	11	7

¹ Excluding sanitarians in Baltimore. ² Master's degree or doctorate. ³ Bachelor's degree. ⁴ But lacking college degree.

of sanitarians with major work in biology, chemistry, science, and mathematics is expected. The large number in agriculture might surprise some. But certainly law, education, English, philosophy, and history are not conventionally listed among the expected basic requirements for a sanitarian. It would be worth while for the competent administrator to ponder on the work of the individuals on his staff, as reflecting their college training, and come to his own conclusions. He may reach the opinion that nonscientific courses are better preparation for dealing with the public than scientific training or that the course itself does not matter so much as the candidate's personality, or he may return to a preference for the biological sciences.

Three tables (tables 4-6) express in various groupings the relationship of salary and education level in State, local, and private industry sanitarians. In general a greater degree of education is recognized with a higher salary. Yet other influences are at work also. The level of salaries in Puerto Rico and the Virgin Is-

Table 5. Educational background and salaries of sanitarian groups in Maryland,¹ Virgin Islands, and Puerto Rico, 1954

Education and income	Total	Maryland			Virgin Islands	Puerto Rico		
		State	County	Private industry ²		Super-visors ³	Insect control sanitarians	General sanitarians
Total number of sanitarians	327	5	68	11	10	22	10	201
Schooling completed								
8th grade	314	5	61	9	8	22	10	199
High school	262	5	53	8	6	22	7	161
College	65	5	32	5		22	1	
Salary bracket								
Under \$2,000	175				7		4	164
\$2,000-\$2,499	43				3		5	35
\$2,500-\$2,999	7		4	1				2
\$3,000-\$3,499	21		8			12	1	
\$3,500-\$3,999	37	1	28	1		7		
\$4,000-\$4,499	28	2	19	5		2		
\$4,500-\$4,999	7		5	2				
\$5,000-\$5,499	3		3					
\$5,500-\$5,999	3	1		2				
\$6,000-\$6,499	2	1	1					
Not stated	1					1		

¹ Excluding sanitarians in Baltimore. ² Milk plant inspectors. ³ With degree of master of sanitary science.

Table 6. Educational background and salaries of sanitarian groups in Baltimore, 1954

Education and income	Total	Sanitary police	Private industry sanitarians		City health department sanitarians							
			Foods	Milk plants	Industrial hygiene	Foods	Housing	Meats	Milk	Rodent control	General sanitation	Plumbing
Total number of sanitarians	164	24	22	19	6	12	19	18	12	12	13	7
Schooling completed												
8th grade	150	17	21	17	6	12	19	18	11	10	13	6
High school	109	6	15	14	5	12	17	9	11	10	12	
College	60		6	5	2	7	16	7	5	5	7	
Salary bracket												
\$2,500-\$2,999	2			1				1				
\$3,000-\$3,499	24	2	(1)	(1)	1	3	6	1	1	4	5	1
\$3,500-\$3,999	47	3			3	4	8	9	4	6	5	5
\$4,000-\$4,499	32	19			1	3	3		2	1	3	
\$4,500-\$4,999	5				1			2	2			
\$5,000-\$5,499	7		5			1		1				
\$5,500-\$5,999	7							3	2	1		1
\$6,000-\$6,499	1							1				
\$6,500-\$6,999	1							1				
\$7,000-\$7,499	2					1			1			
\$7,500-\$7,999	1						1					
\$8,000-\$8,499	1		1									
Not stated ¹	34		16	18								

¹ Information from private industry on salaries was incomplete.

lands is lower than in the mainland areas studied. That 14 Maryland sanitarians without a degree (table 5) are in a higher salary bracket than 20 holders of a degree is usually because the college graduates have been at work a shorter time.

Service and Training

Tables 7 and 8 deal with length of service with the present employer. In this field, as a rule, the length of service is identical with the years in sanitation; very few sanitarians have had previous experience in sanitation before coming to the present job.

The information in these two tables gives us some idea of turnover. It appears that one-third of the sanitarians in Maryland counties and one-fourth of those in the other areas have served their present employers less than 3 years. We can also see that the period of service in

Baltimore City varies also according to the activity—plumbing inspection has been long established in the health department, whereas housing is new. We can interpret the tables as pointing a need and opportunity for early training in order to make the workers effective as soon as possible and to prevent undesirable work habits from forming and becoming fixed.

The most detailed account of on-the-job training is available in Puerto Rico's replies to the questionnaire. Almost one-third of the sanitarian staff attends one or more short courses each year. Twenty-two sanitarians took 1-day short courses in 1951; altogether, 31 took short courses that year. Forty-two sanitarians took short courses in 1952, and 74 in 1953. Several persons attended from 3 to 6 institutes each in the years 1951 to 1953. The health department usually arranges the programs for these short courses, sometimes with outside help.

For years, a feature of training sanitarians in Puerto Rico has been a general sanitation course lasting some 90 days. A similar course is offered in many States. The training in Puerto Rico was intended for the nonsupervisory personnel but was not taken by the workers in vector control, a group of older men, or by those studying for a master's degree in sanitary science at the University of Puerto Rico. Of the 201 general sanitarians, 143 (71 percent) took the 90-day course in the years from 1937 to 1954—a remarkably good record

for this 17-year period. The ages of the 58 who have not taken such a course vary as follows:

Age group	Number	Age group	Number
25-29	5	50-54	7
30-34	7	55-59	13
35-39	3	60-64	12
40-44	4	65-69	3
45-49	4		

The health department might well consider which of these individuals could profitably take the 3 months' general course.

Table 7. Length of sanitation service with present employer, for sanitarians in Baltimore, 1954

Years of service	Total	Sanitary police	Private industry sanitarians		City health department sanitarians							
			Foods	Milk plants	Industrial hygiene	Foods	Housing	Meats	Milk	Rodent control	General sanitation	Plumbing
Total number of sanitarians	164	24	22	19	6	12	19	18	12	12	13	7
Less than 3	41	7	5	4	2	3	12	2	1	1	4	
3-4	18	3	1	3	1	1	3	1		4	1	
5-9	48	11	8	3	1	5	4	2	2	6	4	2
10-14	20	1	3	3	1	2		2	3	1	4	
15-19	5	1		2				2				
20-24	7			4				1				1
25-34	18		1		1	1		8	5			2
35 or more	2											2
Not stated	5	1	4									

Table 8. Length of service with present employer, for sanitarians in Maryland, Puerto Rico, Virgin Islands, 1954

Years of service	Total	Maryland			Virgin Islands	Puerto Rico		
		State	County	Private industry ¹		Supervisors ²	Insect control sanitarians	General sanitarians
Total number of sanitarians	327	5	68	11	10	22	10	201
Less than 3	93	1	23	3	3	10		53
3-4	36		16		1	4		15
5-9	92	2	11	4	2	7	3	63
10-14	38	2	14	2	1	1	2	16
15-19	20		4				1	15
20-24	14			1			1	12
25-34	25						3	22
35 or more								
Not stated	9			1	3			5

¹ Milk plant sanitarians. ² With degree of master of sanitary science.

Uses for a Sanitarian Study

For some 14 years the public health nurses concerned with staff preparation have used a questionnaire on college education and formal training in public health nursing to point out problems, to plan programs, and to measure progress from year to year.

We offer this analysis of a pilot study in an effort to spur a similar evaluation for sanitarians. All concerned—sanitarians, sanitary engineers, training officers, and health officers—need to discuss the subject and move toward some agreement on standards.

That an inventory of sanitarians is seriously needed is evident. It is important to know much more than we do about our sanitarians, who they are, where they are, whether they are employed by the community or privately. They will all be needed in a public emergency.

Some such inventory procedure would seem indispensable for any administrator responsible for the services of a group of sanitarians. Whether a questionnaire, as used in this study or after some revision, should be used or whether a personnel card containing similar data would suffice is a fair subject for consideration. The questionnaire used in this study frequently aroused staff interest, a desirable reaction. It seems evident that the information should be collected in every State and in such a uniform fashion as to permit comparison.

. . .

Samples of the questionnaire on sanitarian training are available from Region III, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D. C.

Ratio of Old-Age Assistance to Old-Age Insurance

Proportionately, 20 percent fewer people were receiving old-age assistance payments in June 1955 than in June 1950, Commissioner of Social Security Charles I. Schottland reported in November.

There were 14,244,500 persons aged 65 or older in June 1955. Old-age assistance was received by 2,544,496, or 179 of each 1,000. In June 1950, 2,786,690 of the aged population of 12,399,100, or 225 of each 1,000, were receiving old-age assistance.

One reason for this decline in the number of assistance recipients is the increase in the number of aged who now receive old-age and survivors insurance benefits. In June 1950, only 169 of each 1,000 aged persons received insurance benefits. In June 1955, 423 of each 1,000 aged received insurance benefits.

Although the caseload of aged persons drawing public assistance has dropped during the past 5 years, the cost of the program has increased because payments to individuals in most States are larger.